

Vance (R. A.)

CANCER OF THE INTESTINAL TRACT:

OPERATIONS FOR THE REMOVAL

OF

Malignant Strictures of Pylorus
AND INTESTINES.

TOGETHER WITH A BRIEF REVIEW

OF THE

HISTORICAL DEVELOPMENT OF MODERN
ABDOMINAL SURGERY.

BY



REUBEN A. VANCE, M. D.,

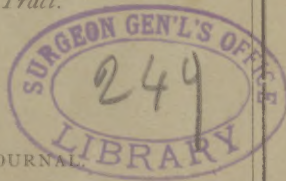
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OF WOOSTER, ETC., CLEVELAND, OHIO.

*An Argument Submitted to the Cuyahoga County Medical Society. April 3d,
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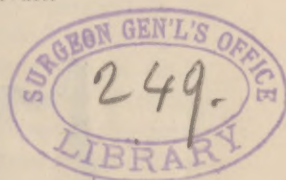
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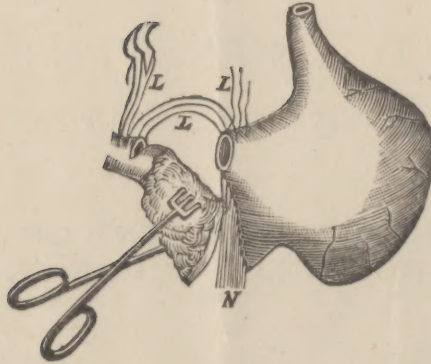
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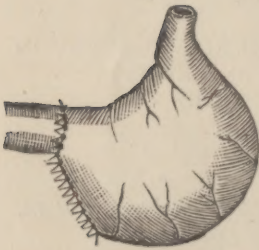
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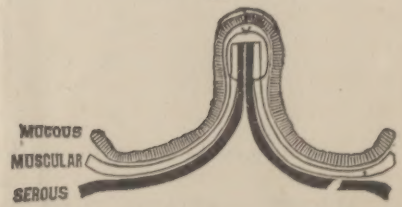
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CANCER OF THE INTESTINAL TRACT.



BY REUBEN A. VANCE, M. D., CLEVELAND, O.

Professor of Operative Surgery and Clinical Surgery, in the Medical Department of Wooster University, etc.

In order to discuss the justifiability of operations for the removal of cancerous tumors of the intestinal tract—the stomach and intestines—we must first ask, Why should cancers be removed at all? It would take too much time to even glance at this question, so I will take for granted the axiom in surgery that malignant growths of all forms demand immediate and complete removal. To this rule there are few exceptions, and these more apparent than real. Cancerous tumors of the brain are not operated upon for the simple reason that the organ from which the morbid mass takes its origin is too delicate a structure for the necessary manipulations of the surgeon. The same is in a measure true of cancer of the liver; here it is not the peculiar structure of the organ affected so much as it is the danger of hemorrhage that prevents the surgeon cutting away malignant growths developed in the hepatic substance. No such dangers attend upon the excision of cancerous masses from the intestinal canal—on the other hand there are cogent reasons demanding their removal. It is but infrequently that the physician or surgeon can know beforehand just what will be found in the abdomen when necessity demands that its recesses be explored, and as there are special circumstances occasionally demanding excision of malignant growths of the intestinal tract, as well as a series of real and imaginary dangers attending any operation in the abdomen, I ask the patient attention of the Society while I briefly review the Historical Development in recent years of the Surgery of the Abdomen. This necessitates a consideration of the various methods of treating penetrating wounds of the abdomen, as well as an outline of the operations resorted to for the relief or cure of surgical affections of the abdominal viscera. I know of no course, so well calculated to afford a correct idea of the real nature of surgery; none that will so well reflect the progressive improvement of surgical art, or so truly exhibit the gradual elimination of truth from error.

The action of that ecclesiastical council which forbade the clergy performing bloody operations drove Chierurgery from the Monasteries, and developed a class of practitioners who finally assumed power and professional consequence in the French Academy of Surgery. Our present inquiry requires us to devote a moment to the physiological views and pathological speculations of one of the eminent representatives of this Acad my—the great surgeon, John L. Petit. While recognizing the fatality of abdominal wounds as the rule, this observer felt constrained to offer an explanation of the curious fact that occasionally an individual would recover from an injury of this character. It was with this object in view that Petit announced those physiological speculations that since his day have played so important a part in the surgical pathology of the abdominal viscera. Briefly stated they are as follows: The abdominal organs are maintained constantly under pressure; this pressure serves to keep the visceral and parietal layers of peritoneum in contact, and suffices in cases of penetrating wound puncturing stomach or intestines to drive any food or feces that exude into the wound and out of the body, thus obviating all danger of effusion of extravasated material into the peritoneal cavity. Furthermore, in the mutual relations of abdominal walls and contained contents, while in respiration there is a direct movement of mass, there is no change of position on the part of individual constituents of the abdominal viscera. Thus, a given portion of the intestines, for instance, always remains behind that part of the abdominal wall in the rear of which it was originally developed. Consequently a knife driven into the abdomen makes a wound in which the deep portion always remains in direct contact with the superficial opening. It is readily seen how these ideas elucidate cases of recovery from penetrating wound of the abdomen. The absence of change of relation on the part of the viscera, and the persistence under all circumstances of particular organs in contact with given areas of the abdominal walls, together with the influence of pressure between the muscular walls below and the diaphragm above explain completely these occasional cases of recovery.

Upon these speculations the Italian surgeons founded a line of practice known as Scarpa's method relating mainly to the treatment of wounded intestines that had protruded. The principle of letting alone wounded intestines that remain in place, tacitly assumed to have emanated from Petit, was carried to its logical conclusion in the practice of Scarpa in the management of wounded and protruded intestines. Assuming as correct the conditions of the abdominal viscera taught by Petit—the uniform pressure and absence of relational movement, especially—what was more

proper than the return unclosed of these wounded organs, if the opening in the gut could not deviate from the incision in the wall, and the general compression under which all these organs were maintained sufficed to eject through the wound the food or feces that chanced to approach the region of the intestinal lesion? Here, then, is a line of practice endorsed by eminent surgeons as justifiable and proper, to which a moment's attention should be given. Is it not worth our while, now that we are assembled confessedly to pass upon the justifiability of a modern surgical procedure that we devote a moment's thought to the manner in which this procedure of Scarpa became the orthodox surgical method of treating wounded and protruded intestines?

But surgery then as now was not the exclusive property of any nation or of any race; John Bell, the illustrious expounder of surgical pathology in Edinburgh, in his eloquent lectures upon wounds, reviewed in a masterly manner, these lesions of the abdomen. Accepting the doctrines of Petit, and even adding to them his own conceptions, he nevertheless rejected the practice of the Italians. Granting the truth of Petit's teachings as to the uniformity and constancy of pressure, and the absence of relative movement in the abdominal viscera, John Bell denied the presence of anything like a cavity in the peritoneum during life, and held that the adhesive process, by uniting the edges of the wound, checked the progress of inflammation and saved the patient from fatal peritonitis. Thus, the student of surgical opinion can trace the progress of certain theoretical conceptions and review the practice founded on them from France, through Italy, into Scotland. These theories of what the abdomen should be, were not based upon the revelations of Nature, but founded on the conceptions of representative teachers. We see Scarpa accepting as eternal truth the ideas of Petit, and basing on them practices involving life or death. Bell, although an advocate and exponent of theory, in practice departed from the plan of Scarpa, and introduced a method of his own—that of stitching the edges of the wounded gut to the borders of the cutaneous incision. Here we are again presented with the same problem that confronts us to-day: here is a surgical leader daring to deviate from the precepts of the time, and introduce as justifiable an operative procedure not in conformity with the theoretical conceptions of the ruling schools of the period. To see how this daring innovator was censured by the orthodox practitioners of the time one has but to glance at contemporary historical records—the surgeon who, in opposition to the ideas of Petit and the practice of Scarpa, did not return the open gut from which fecal matter was dripping into the delicate cavity of the peritoneum, was

denounced as a "cutter and slasher" by the self-constituted authorities of that day, just as to-day, similar innovators are censured by modern representatives of the same class that so persistently hounded John Bell!

But science is slow of growth, and truth is revealed only by degrees. Just as representatives of French, Italian and Scotch surgery successively grasped this question, and each contributed his mite to the Historical Development of Abdominal Surgery, so it proved in the end as regards English and American surgery. Benjamin Travers was the first inquirer who turned the rays of scientific experiment and observation on this topic, and his work is a mine of valuable truths. The fact he unfolded with which we are mainly concerned relates to the treatment of wounded and protruded intestines. He did not deny the truth of Petit's and Bell's theories—he even added the weight of his authority to the ideas they entertained of the way Nature manages and occasionally cures penetrating wounds of the abdominal viscera. He showed that as regards the application of Petit's and Bell's theories, an intestine in place and one protruded were very differently situated. Granted, says Travers in effect, that Petit's universal pressure and absence of rational movements will keep the visceral and parietal surfaces of the peritoneum together and force extravasated food or feces into the wound and out of the body—granted, with Bell, that there is practically no peritoneal cavity into which effusion can occur, and that the irritation due to the ejection along the walls of the wound of food or feces, blood or urine, causes the peritoneal edges to melt down into a glutinous mass that will make them adhere and cut off the passage of inflammation to the peritoneum—granting all this, yet no one can successfully maintain that there is any similarity between the condition of an intestine in place, and one that has been extruded. The extrusion of an intestine carries it away from the segment of abdominal wall with which normally it is in contact, and we can never make sure that in efforts to return the gut we will get it into its right place. Therefore, to return a wounded gut, with the wound open, is to place the abdominal viscera in a condition quite unlike that Nature would effect had there been no protrusion. So Travers unfolded a line of practice that has proved a permanent addition to surgical science. He stitched up the wound in the intestine before returning it. But this innovation did not pass unchallenged, and just as Bell was denounced for deviating from the method Scarpa founded on the theories of Petit, so Travers was censured for following a plan different from that introduced by Bell. May I not be permitted to suggest that in these lessons from the pages of surgical history a precedent be found for our guidance to-day; is it not bet-

ter that our practice in matters involving life or death be founded on observation and experiment rather than on theory and authority?

To those remaining undecided let me cite the next incident in this historical retrospect: one in which we are doubly interested, for it not only unfolded truth, but sprang from the brain of an American, Samuel D. Gross, then a Professor of Pathological Anatomy in this State. Gross followed the English school, by resorting to experiment; he deviated from them by daring to question the infallibility of Petit's and Bell's theories, and while adopting the practice of Travers, he rejected absolutely the methods of Scarpa and Bell. He showed that the presence or absence of effusion made the difference between life or death in the horribly fatal cases of penetrating wounds of the abdomen in which the intestine remained in place; the cases in which according to Scarpa, Bell and Travers, Nature has best calculated to deal advantageously with this lesion. The light cast on this subject by the observations and experiments of Gross placed matters in a different position. We can now see why it was Petit only formulated his ideas of the behavior of the abdominal viscera as an explanation of the rare and exceptional cases that recovered. One can now see the fearful blunder of adducing these theoretical conceptions of what the abdomen should be, as laws of Nature, and founding upon them a line of surgical practice! The innumerable pages written to unfold the views of Petit and John Bell have been set at naught by the experiments of Gross. The whole superstructure erected upon the idea that the forces of the abdomen were sufficient to prevent effusion into the peritoneal sac, has fallen to the earth. It is instructive to note that the only observations that have proved fruitful in all this history, are those based on actual experiment. The practice of Scarpa, based as it was on the theoretical conceptions of Petit, proved horribly fatal; that of Bell, founded on Nature's method of dealing with intestinal fistulæ, was a grand step towards truth; while that of Travers has not been improved upon since. Contrast this with their practice in cases where the intestines were wounded but not protruded. Notwithstanding that Petit only advanced his peculiar views as an explanation of the mechanism of recovery in the exceptional cases that escaped death, his ideas were made the foundation of Scarpa's practice, accepted and added to by Bell, and adopted even by Travers. The latter went so far as to claim that recovery from penetrating wounds of the intestines was not the exceptional event, but the general rule. To Gross we are indebted for the overthrow of these ideas, and the introduction of true views of abdominal physiology. Gross demonstrated that effusion depends largely upon the size of the

wound and the condition of the intestine. He also advocated abdominal exploration in cases of effusion. Travers improved upon the methods of Bell, and formulated our present practice in cases of wounded and protruded intestines; Gross exhibited errors in the views of Petit, Bell and Travers, and enunciated the correct rule of procedure in penetrating wounds of the abdomen attended by effusion. Have we not food here for reflection, and so on an occasion like this, assembled as we are to discuss, and it may be to pass upon, the justifiability of an operation involving the same results, situated in the same field and environed by the same fallacies as the ones just reviewed, does it not behoove us to give this matter careful thought, and before coming to a conclusion, to weigh well all the evidence bearing upon this subject, as well as dismiss from our minds all preconceptions based on mere authority?

These historical researches would not be barren were there no further facts to be deduced from them than those regarding penetrating wounds of the abdomen. French, Italian, Scotch and English surgeons were content to extol, as the perfection of treatment, a method in which Nature, unaided, did all that was done for the patient's restoration—a system that lost more than nine out of ten cases—and the myths upon which this practice was based were only exploded by the labor of a man still living. We find here the lesson so frequently taught by modern progress: that reliance upon authority, and neglect of observation and experiment are the main enemies of science. Not only that: we find operations based on error, and attended almost invariably by death, perpetuated by authority as the correct practice, while the proper method was denounced by self-constituted leaders of the profession as a reprehensible proceeding. May we not learn from this historical retrospect to be a trifle cautious in either lauding established practice, or denouncing new measures as unjustifiable?

We have now reached a point where inquiry can profitably be made as to the hesitancy of our surgical predecessors in exploring the abdominal cavity in cases of intestinal wound, or intra-peritoneal disease. Monro, of Edinburgh, many years ago, announced that the air exercised a corrosive influence upon exposed serous membranes; that penetrating wounds of the abdomen were fatal because the air thus gained access to the peritoneum. It is thought by many that we have an explanation of the speculation of Petit, and the practice of the French and Italian surgeons; the mortality of abdominal wounds was due to air reaching the peritoneum and exciting fatal inflammation—those patients that escaped were the fortunate few who were aided in the manner already detailed by Nature's

supposed conservative provisions! Although John Bell protested against the imaginary irritating qualities of the air, the doctrine still remained fixed in the professional mind, and to-day has many advocates. Gross had to contend against it when he advocated exploration in cases of effusion, and the only doctrine that bids fair to supplant it, is the view that has gained ground since the recent extension of the surgery of the abdomen in the removal of ovarian tumors, that the great mortality of abdominal lesions is due to septic rather than inflammatory causes. It seems as if no amount of mere mechanical irritation can develop peritonitis; that the peritoneal sac can be opened and its contents handled with impunity, provided only that the exposed surfaces are properly cleansed, and the abdominal cavity freed from extraneous organic substances. Yet, on the other hand, the slightest amount of organic matter—food, feces, blood, pus or urine—in the peritoneal cavity suffices to initiate a series of changes that result in death from blood-poisoning. It is septic substance, and no mere traumatic irritation that stimulates the peritoneum to the effusion of products that poison the patient; remove this material, and the subsequent dangers are trivial!

It would take altogether too much time for me to follow further the progress of abdominal surgery; to show how very slowly true views of the manner in which Nature deals with intestinal sutures gained credence; or how gradually surgery has reached its present comparatively perfect method of treating intestinal lesions. The necessity demanding excision of foreign bodies accidentally reaching the stomach demonstrated the non-fatality of gastric wounds, the accidents attending strangulated hernia revealed the fact that large portions of the intestines could be removed and the patients still recover. The study of the morbid anatomical appearances presented by these patients in after years, together with the intestinal lesions in individuals dying of intus-susception immediately after the strangulated part was voided, cast light upon the mechanism of recovery. These facts, supplemented by experiments upon animals, show that the peritoneum can be opened, a portion of the intestinal tract—segments of either stomach, or large or small intestines—excised and by properly approximating the peritoneal edges of the wound, the continuity of the gut can be re-established. It is now more than forty years since Reybard, of Paris, took out a section of the colon in excising a cancerous mass from the large intestines. In recent years Spencer Wells has not hesitated to remove a portion of the intestines intimately attached to an ovarian tumor. Cases that have passed through my own hands convince me that in the vast majority of instances of primary cancer of the intes-

tines, excision of the diseased part is not only justifiable as a surgical procedure, but it is one of the most promising of all the measures developed by recent researches. It would indeed be singular were educated and skillful representatives of modern surgery to reject as unjustifiable, an operation that not only relieves obstruction of the bowels, and prevents immediate death, but removes the primary encroachments of a fatal malady, while yet of a local character!

Obstruction of the bowels is generally the first evidence of cancer of the intestinal tract. In those rare instances in which it is not the symptom drawing attention to the condition of the abdomen, it is one of the phenomena soon developed by malignant disease of the pylorus, small intestines, cecum, colon or rectum. The necessity of opening the abdomen and searching for, and if possible removing, the cause of the obstruction, is acknowledged by representative surgeons the world over. Mr. Bryant, of London, says: "Indeed, I believe a surgeon may as well delay in cutting the rope in a case of suicide by hanging whilst he is speculating as to the influences which have led the man to perpetrate the act, as to delay operative interference in a case of acute intestinal obstruction with the hope that he will be able to make a scientific diagnosis of the case, or that something will turn up by which relief may be obtained." Dr. Carson, of Cincinnati, claims that "it is not required of the surgeon to diagnosticate the *precise cause* of the obstruction *so long as the diagnosis of its existence* can be determined." To this I would add that not only is it the duty of the surgeon to explore the abdomen in all cases of intestinal obstruction, but he should open the peritoneal sac and investigate the condition of stomach and adjacent parts in tumors of the pylorus impinging upon the passage-way between stomach and duodenum. This rule would expose to view the first manifestations of malignant disease of the abdomen, and enable the surgeon by excising strictured portions of the intestinal tract to make sure of removing cancer in its incipency. I would urge this rule, not so much for its application to intestinal excisions—for there its propriety is little questioned by experienced surgeons—but with special reference to the pylorus. If the disease be limited to a slight area of stomach, and have not implicated adjacent parts, the surgeon can reasonably expect to effect a complete removal of the morbid mass, and his patient will partake of the advantages incident to early and efficient excisions of malignant growths. Not only this: there are so many cases in which a condition simulating scirrhus of the pylorus develops and causes death, in which nothing but fibroid degeneration of this part of the stomach can be proved to exist, that an early and efficient excision is of equal benefit to the patient without regard to the malignancy or non-malignancy of the tumor.

There are certain points connected with excisions of portions of the intestinal tract covered with peritoneum, common to all these operations, which demand consideration in every case. These relate mainly to extent of disease, treatment of adhesions, management of viscera during operation, and disposition of parts afterwards in manner calculated to facilitate recovery. In the first place, no procedure of this character should be undertaken save with the distinct understanding between patient and surgeon, friends and assistants, that the operation is primarily of an exploratory character, and made, first of all, for the purpose of revealing the true nature of obstruction of the bowels, or obscure lesions of the abdominal viscera. This leaves the surgeon free to act according to the dictates of his best judgment when the site of disease is revealed and its true character exposed.

Rokitansky has shown by the unanswerable evidence of morbid anatomy, the rarity with which cancer extends from pylorus to duodenum. The researches of Gussenbauer and Winiwarter prove that the pylorus is by far the most frequent site of primary cancer of the stomach, and their statistics reveal that neighboring organs are implicated at a comparatively late stage of the disease. It has also been demonstrated that cancer at any part of the intestinal tract may develop, and produce obstruction of the bowels without adhesions occurring. It very rarely happens that adhesions are found in any stage of the affection which would prove an obstruction to the surgeon's design. If they do exist the surgeon can compress them with an instrument like Liston's bone forceps, and after thus crushing them, can sever them without the least danger of hemorrhage. The original incision in the abdominal wall should be so situated as to expose thoroughly the area of disease. Should the surgeon ultimately determine to cut out the cancerous mass he should primarily take such precautions as will render the opening of the peritoneum harmless. While dismissing the dogma of Monro as to the corrosive quality of the external air, and sending with it, as exploded doctrines, the speculations of Bell and Travers, it by no means follows that peritoneal wounds are as free from danger as incisions of the limbs. The peritoneum has an enormous surface, constantly moist, and one, which, when exposed, leads to such rapid cooling of the blood, that immediately reflex paralytic contractions of the heart, and even death, are threatened. Nussbaum points out another source of danger in the almost unlimited power of absorption which the peritoneum possesses; thus, any exudation which has undergone unhealthy metamorphosis may poison the blood. Peristaltic action, by which any exudation in the peritoneal sac is stirred up and spread over the whole peritoneal surfaces, and the respiratory movements, combine

together to facilitate freedom of absorption. Again, peritoneal wounds are dangerous on account of the innumerable little spaces existing everywhere, into which secretions find their way, lie hidden and decompose. Finally, there is the deleterious influence of the ill-smelling intestinal gases which especially favor sepsis: gases which find their way in and out even when the bowel itself is in a healthy state. Since these dangers have been understood and the means by which they may be overcome have been learned, the judicious surgeon is enabled to obviate them.

Every possible precaution should be taken to guard against infection; the spray must therefore be used. The incision in the exploratory operation should be made in the middle line, and if possible over the tumor. Should the tumor extend to one side, a lateral incision can be made at right angles to the original opening when excision of the pylorus has been determined upon. If other viscera are involved—especially the liver, pancreas or descending duodenum—or the disease extend over the greater part of the stomach, the wound must be closed and the patient abandoned to his fate. When there are few if any adhesions, the disease limited to a circumscribed region of the pylorus, and the patient in good general condition, the case is one favorable for excision. The operation is not contra-indicated even in combined gastric and intestinal cancer, provided the latter is limited to an accessible part. A patient in whom the pylorus is alone affected can be operated upon in this way: The tumor exposed and its extent and character determined, it is drawn as far as possible into the wound and the line of incision determined upon. This depends upon the size of the mass, and the region of stomach impinged upon. In the first illustration it will be seen that the symmetry of the stomach depends largely upon the procedure adopted. The first and second figures show that a very unsightly angle may be made at the terminal portion of greater curvature unless the primary incision be directed as denoted in figure three. Figures four and five exhibit certain advantages that attend upon the attachment of the duodenum to the greater curvature of the stomach. The line of incisions decided upon—and this necessitates a conclusion as to the place of insertion of intestine into stomach—the next step is the isolation of the tumor. To do this pylorus and adjoining portions of stomach and duodenum must be freed from adjacent parts. Unless the surgeon is supplied with the requisite appliances, he will find this the most difficult part of the whole operation. With an instrument like Liston's bone forceps, the omentum can be severed, blood-vessels compressed and hemorrhage prevented. Any blood vessel that the surgeon hesitates to leave without additional security can be tied with a double ligature and severed between. In some cases the omentum has been re-

moved without any tendency to hemorrhage. The greater curvature is isolated, the lesser curvature is freed, the tumor separated from omental attachments and all enlarged glands extracted. The stomach can now be drawn through the wound and in great part out of the abdominal cavity: a large, soft sponge, just wrung out of hot water, is placed under the tumor, and the subsequent proceedings are extra-peritoneal. These relate to the excision of the diseased mass. A glance at the accompanying illustration will show how important it is to have the line of incision properly directed through the stomach in order that the organ may preserve its symmetry after the tumor is extracted. If the duodenum is to be attached to the stomach near the lesser curvature, as shown in figure three, the procedure illustrated in figure one and two can be adopted. The surgeon makes a slight opening in the anterior wall of the stomach on the line of incision, and through this opening a glass tube is inserted. This is connected with a reservoir of water by elastic tubing, and the cavity of the stomach is alternately distended and emptied of water until the fluid returns clear; the surgeon then proceeds with his incisions. Scissors are used, and after each cut, the hemorrhage is checked. In checking hemorrhage from vascular membranes I know of no device equal to a back stitch made with a small, well waxed thread, mounted on a slender needle, the whole bleeding surface being guarded by a line of stitches passing through mucous and muscular coats about one-eighth of an inch from the border of the wound. In this method each loop includes one-half of its predecessor, and is encroached upon by one-half its successor, and thus, by drawing the threads tight, all danger of hemorrhage is effectually avoided. As the incision is carried forward, hemorrhage is checked in the manner provided for above, and steps are taken to close the opening in the stomach in excess of the aperture required for the insertion of the duodenum. This is accomplished by passing sutures after the method of Lembert—through the serous membrane alone, entering at a half inch from the incision and emerging one-eighth of an inch from its edge, crossing the incision, entering the serous membrane one-eighth of an inch from the edge of the wound and emerging a half inch from it; a suture that accurately approximates the serous borders, but one which in this operation needs to be supplemented by firm stitches through the mucous membrane internally. In figure two the progress of the surgeon's manipulations can be traced to the point where the Lembert sutures to unite upper and posterior borders of the gastric opening with like borders of the wound in the duodenum have been inserted. The ends of the sutures in the lower part of the stomach were left long in order to afford a convenient method of handling the organ. The hemorrhage following incisions

in the duodenum is to be checked by back stitching, just as in the stomach; during this time the tumor grasped with forceps in the hands of an assistant, has served to hold the duodenum in place. Hemorrhage checked, the cut surfaces of the duodenum are united with corresponding borders of the stomach, and the edges of the mucous membrane are stitched together. This process is continued until the tumor is free, the hemorrhage controlled, the Lembert sutures inserted and tied, and the borders of the mucous membrane sewed together over all but the last fourth of the opening; here, the necessities of the case demand different measures. Heretofore all the stitches and threads were fastened so that they could in time be discharged into the cavity of the intestine; it is essential now to employ a few interrupted sutures that in the nature of things cannot be so favorably placed. Lembert sutures are inserted, the serous borders of the opening at the junction of duodenum and stomach are everted, and the sutures tied; this closes the aperture, but does not make the union sufficiently firm—interrupted sutures going through all the coats are inserted between the Lembert sutures, tied, and cut short; this remedies the defect. It also completes the operation so far as removal of tumor and re-establishing communication between stomach and duodenum are concerned. Figure three gives an idea of the appearance of the stomach; figures four and five show deviations demanded when the union between stomach and duodenum is effected at the greater curvature. Figure six exhibits the manner in which Lembert's suture approximates peritoneal surfaces in this operation; it also illustrates the manner in which the mucous surfaces are united over the attached serous borders of the wound. This illustration while showing the apposition of serous borders brought about by the Lembert suture does not exhibit the true site of the knot in the stitch passing through the peritoneal tissues. This knot varies with the side from which the suture is inserted. In the true Lembert suture the thread is not only introduced from the serous surface, but it returns through it. Yet the sixth illustration reveals the manner in which these tissues are approximated when necessity demands these stitches be inserted from the inner surface of the viscera. Take the condition of affairs revealed in figure two, and instead of inserting the Lembert sutures shown loosely extending from duodenum to stomach, remove the tumor, approximate the edges to be united, and insert the needle from within, through muscular and serous coats of stomach, into the serous and muscular walls of duodenum, then draw the suture tight and tie. This will place the knot in the position shown in figure six; by subsequently uniting the mucous surfaces with interrupted sutures the precise condition there shown will be produced. The long ends of the sutures,

left so in order to afford a firm grasp of the organs operated upon, can now be severed, the abdominal cavity cleansed and the external wound closed.

When we consider the circumstances under which this operation has heretofore been performed—the exhaustion of the patient and the constitutional implication—the only wonder is that they survived. Reverse this state of affairs, operate early, excise the tumor while yet local, before the constitution is broken down and the patient on the verge of death from exhaustion, and at once the surgical aspect of this procedure is revolutionized. This will place patients with cancer of the pylorus on the same plane with those suffering from malignant diseases of the intestine; those with simple fibroid degeneration of the terminal orifice of the stomach on a par with those having a benign stricture of the gut. In both cases the surgical principle involved is simple; it is to excision, and excision alone, that the patient can look for relief, and the man who fails to afford such a sufferer the relief he seeks, and give him the benefit of the chances left him, is unworthy the name of surgeon.

The shock of the operation soon passes off, and although one can conceive of dangers incident to rupture of sutures by excessive gaseous distension, and collapse from extravasation, still such consequences are rarely encountered. Again, although hemorrhage is possible, septic conditions, due to peritoneal effusion, are the real danger. This is indicated by changes in pulse and temperature, and is attended by the presence of an acrid fluid in the peritoneum. The practical fact is that the advent of phenomena indicating septic conditions should at once lead to exploration of the abdomen, and, if necessary, cleansing of the peritoneal sac.

In bringing this statement to a close, permit me to again urge the importance of deciding questions of operative procedure upon Surgical Principles, and not upon the fears, the preconceptions, or the prejudices of any man or any set of men. As the excision of malignant growths of the intestinal tract involves the local or constitutional nature of cancer, the mechanism of repair in intestinal lesions, and the safety of all abdominal operations, let the appeal be made to the solution which Modern Surgery gives these important problems. Judged in this way there can be but one decision, and that to the effect that these operations are justified by all the Precepts and Experiences of Modern Scientific Surgery!



